What is claimed is:

1. A motor comprising:

a permanent magnet formed from a plurality of magnetically differing poles disposed in an alternating and circumferential fashion;

an armature rotatingly disposed within an inner circumference of the permanent magnet, the armature having coils wound thereabout; and

a commutator comprising a plurality of segments disposed in a direction of rotation and electrically connected to the coils wound around the armature, the segments mutually adjacent in the direction of rotation and being mutually insulated;

a brush successively contacting each of the segments due to rotation of the armature; and

a capacitor electrically connected to a circuit including the commutator and the armature, wherein the capacitor stores electromagnetic energy released by the coils during rotation of the armature to prevent occurrence of discharge between the brush and the segments.

2. The motor according to claim 1, further comprising:

A center core; and

And outer core, wherein the center core and the outer core are joined by a joint such that when successive outer cores are joined to the center core, the coil, when wound, forms a trapezoidal shape.

3. The motor according to claim 1, wherein electric current from the coils flows to the brush via the segments when the segments and the brush are in contact, and the electromagnetic energy discharged by the coils is temporarily built up by the capacitor when the brush separates from the segments.

4. The motor according to claim 1, wherein the capacitor is disposed in the commutator.

5. The motor according to claim 4, wherein the commutator comprises a plurality of terminals electrically connected to the respective segments, the capacitor being electrically connected directly to at least two of the terminals adjacent in the direction of rotation.

6. The motor according to claim 1, wherein the number of the segments is even and pairs of the terminals located radially opposite are directly electrically connected.

7. The motor according to claim 1, wherein a recessed portion is formed in the armature near the commutator, and the capacitor is disposed so as to project on a side of the commutator nearest the armature and is located in the recessed portion.

8. The motor according to claim 1, wherein the armature comprises:

a plurality of armature pieces disposed in the direction of

rotation,

a plurality of coils wound around the respective armature pieces, and

a plurality of coil terminals corresponding to the respective coils,

the capacitor being disposed on a side of the commutator nearest the armature so as to be located between the coil terminals.

9. The motor according to claim 8, wherein a location of the capacitor in the direction of rotation corresponds to the recessed portion formed near the commutator between the coils adjacent in a direction of rotation.

10. The motor according to claim 7, wherein the segments and the capacitor are joined by insert molding an insulating resin portion.

11. The motor according to claim 1, wherein the armature comprises a plurality of bobbins disposed in the direction of rotation, coils being formed by winding of coil around each of the bobbins.

12. The motor according to claim 1, wherein the coils wound around the armature are joined together with a star connection.

13. The motor according to claim 1, whereby the following expression is satisfied, where O is a rated output of the motor

[W], P is the number of pole pairs of the permanent magnet, and C is the total electrostatic capacity of the capacitors [μF]:

$$0.02 * O * P < C < 0.2 * O * P.$$

14. A fuel pump employing a motor according to claim 1, the fuel pump further comprising:

a pump portion that generates a drawing force to draw fuel from a fuel tank due to a rotational driving force of the armature.

15. A commutator rotating together with an armature and converting electric current supplied to coils wound around the armature, the commutator comprising:

a plurality of segments electrically connected to the coils and contacting brushes accompanying rotation of the armature, the segments being disposed in a direction of rotation, pairs of the segments adjacent in the direction of rotation being mutually and electrically insulated; and

a capacitor electrically connected to the segments, temporarily building up electromagnetic energy discharged by the coils accompanying rotation of the armature.

16. The commutator according to claim 15, further comprising:

a plurality of commutator terminals electrically connected to the respective segments, the capacitor being electrically connected directly to at least two of the commutator terminals adjacent in the direction of rotation,

the capacitor further comprising:

a main capacitor body; and

a flexible terminal extending from the main capacitor body.

17. The commutator according to claim 16, further comprising:

a plurality of commutator terminals electrically connected to the respective segments, the capacitor being electrically connected directly to at least two of the commutator terminals adjacent in the direction of rotation, the commutator terminals having first terminals electrically connected directly to the respective segments and second terminals electrically connected directly to the capacitors.

18. A method for manufacturing a commutator, comprising:

electrically connecting a flexible terminal to a commutator terminal base material for the commutator terminals as a connecting process;

filling an insulating resin portion to support a segments base material for the segments, the commutator terminals base material, and the capacitor as a forming process; and

sectioning the segments base material and the commutator terminal base material per each segment while maintaining a state of support by the insulating resin portion as a sectioning process.

19. A method for manufacturing the commutator according to claim 18, further comprising:

forming a first formed body by filling a first insulating resin portion to support a segment base material for the segments and a first terminal base material for the first terminals as a first formation process;

sectioning the segments base material and the first terminals base material per segment while maintaining a state of support by the insulating resin portion as a sectioning process;

electrically connecting the capacitor and a second terminal base material for the second terminals and sectioning the second terminal base material to form the second terminals as a first connecting process;

forming a second formed body by filling a second insulating resin portion to support the capacitor and the second terminals as a second forming process; and

joining the first formed body and the second formed body to electrically connect the first terminals and the second terminals as a second connecting process.

20. A motor comprising:

a permanent magnet formed from a plurality of differing poles alternatingly and circumferentially disposed;

an armature rotatingly disposed within an inner circumference of the permanent magnet, the armature having coils wound thereabout; and

a commutator having a plurality of segments disposed in a direction of rotation and electrically connected to the coils wound around the armature, the segments being mutually insulated and

mutually adjacent in the direction of rotation, the commutator having a plurality of connection terminals disposed on a side of the plurality of segments near the armature and electrically connecting segments of like potential, the plurality of connection terminals being disposed in substantially a like plane and having a mutually avoiding non-contact structure.

21. The motor according to claim 20, wherein the connection terminals comprise connecting portions electrically connecting the segments of like potential, and wiring portions distanced from a side of the plurality of segments near the armature, the wiring portions electrically connecting the connecting portions together.

22. The motor according to claim 21, wherein the wiring portions extend in an arc shape from one of the connecting portions toward another of the connecting portions, a plurality of the wiring portions being disposed in a spiraling pattern in a non-contact manner.

23. The motor according to claim 22, wherein

the connecting portions and the wiring portions are separate members,

a thickness of a thin portion at an inner circumference of the connecting portions is less than that of a thick portion at an outer circumference thereof to provide a difference in thickness,

a stepped portion being formed on a side of the connecting portions away from the segments by the difference in thickness,

the wiring portions being electrically connected to the thick portion of one connecting portion and extending therefrom to pass along the thin portion of connecting portions of differing potential, and electrically connecting to the thin portion of another connecting portion of the same potential.

24. The motor according to claim 23, wherein the wiring portions are ring shaped and a plurality of the wiring portions are concentrically disposed in a non-contact manner.

25. The motor according to claim 21, wherein the connecting portions and the wiring portions are separate members.

26. The motor according to claim 25, wherein the segments and the connecting portions, as well as the connecting portions and the wiring portions, are joined by projections formed on one thereof, fitting with holes formed on the other thereof.